

**MANAGEMENT OF MUNICIPAL INFRASTRUCTURE
IN THE
CITY OF SARAJEVO**

FINAL REPORT

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Prepared by

David DeGroot

and

Michael Green

INTERNATIONAL CITY/COUNTY MANAGEMENT ASSOCIATION
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ABSTRACT

The U.S. Agency for International Development (USAID) requested the assistance of ICMA in August 1994 as part of a broad, multi-donor effort supporting the reconstruction of Sarajevo. USAID requested that ICMA examine the institutional capacity of the Sarajevo city authorities to work in concert with various institutions on the action plan and program for the local management of urban infrastructure serving the citizens of Sarajevo. These institutions include the United Nations Special Coordinator and Trust Fund for Sarajevo Rehabilitation (SCS), the Agency for International Cooperation for the Reconstruction and Development of Bosnia-Herzegovina (AICReD), and the donor communities. The ICMA team found that the socio-political transformation that has been underway in Eastern Europe and the New Independent States (ENI) has virtually bypassed Sarajevo and the rest of Bosnia. Despite this limitation and the exodus of skilled professionals prompted by war, there does remain a significant pool of skilled human resources in Sarajevo to plan and execute the rebuilding of the city, provided the city receives adequate support, resources and capacity-building assistance. These resources could also be more effectively utilized in meeting emergency requirements and framing overall reconstruction efforts if the roles of the different agencies operating in Bosnia-Herzegovina were better clarified and coordinated. USAID and other donors should also support the process of institutional and policy reform which will be necessary for Bosnian national and local authorities to effectively assume leadership of reconstruction efforts once peace is achieved. In light of the above and current constraints on supplies for new capital investments, USAID assistance in the near term would be most beneficial if it supported the city and national government in planning for reconstruction and reform through information sharing and dissemination as well as technical exchanges among U.S. experts and practitioners and Bosnian officials and staff.

EXECUTIVE SUMMARY

Infrastructure services available to the residents of Sarajevo have greatly diminished as a direct result of the fighting going on in Bosnia-Herzegovina (BiH). With the current cease fire and continuing peace talks, the international community launched efforts to assist the city to restore essential public services, including water, wastewater, gas, heat, electricity and transportation. The United Nations established a UN Special Coordinator and Trust Fund for Sarajevo Rehabilitation (SCS). The BiH government created the Directorate for Reconstruction and Development of Sarajevo (DRDS) to work specifically as counterparts to the SCS for Sarajevo rehabilitation and also established an Agency for International Cooperation for the Reconstruction and Development of Bosnia-Herzegovina (AICReD) to work with donors nationwide. Much of the local planning for Sarajevo is undertaken by its City Development Institute (CDI). In the Spring, the SCS prepared and published an Action Plan in preparation for a donor pledging conference held in late June. This Action Plan now includes more than 140 projects across seven action areas, prioritized as either urgent or transitional.

The U.S. Agency for International Development (USAID) pledged \$16 million by Summer 1994 towards Sarajevo rehabilitation, of which \$10 million was intended to assist the city in restoring essential public services. As part of this effort, USAID requested the assistance of ICMA in August 1994 to examine the institutional capacity of the Sarajevo city authorities to work in concert with the SCS, AICReD and the donor communities on the action plan and program for the local management of urban infrastructure serving the citizens of Sarajevo. Accordingly, an ICMA team, comprised of consultants David DeGroot and Michael Green, travelled to Sarajevo in August and September 1994 to undertake this assignment.

The ICMA team found that the socio-political transformation that has been underway in Eastern Europe and the New Independent States (ENI) has virtually bypassed Sarajevo and the rest of Bosnia. As a result, Bosnia has not yet had the opportunity to reform and embark in new directions, as have other countries in this region. During this state of siege, Sarajevan decision makers have also had limited access to information to further their efforts in simply reorganizing institutions and planning for reconstruction.

Over the next six months, the priority for assistance is on key items -- food, water, electricity, gas and medical supplies -- that are required for the citizens of Sarajevo to survive the Winter. While Sarajevans have access to some level of all basic services, the concern of city administrators is to ensure that services and supplies last during the coming cold months. The fundamental risk continues to be Serbian control of land routes and the supply of bulk water, gas and electricity, for which agreements with the Serbs will be needed. In addition, any new damage to physical facilities, such as housing or hospitals resulting from conflict could disrupt the provision of basic services. Finally, shortcomings of the existing system exacerbate these risks, including leaks in the water distribution system (which are believed to be responsible for 70% of lost supply) and needed repairs to the main 110 kV transmission line to help meet Winter demand for electricity.

Given the difficulty in getting the supply of even these basic goods to the city, the possibilities for new capital investments are very limited at this time. Fortunately, with the formal establishment of the SCS in April and of the government's complementary AICReD, significant progress has already been made to identify and begin addressing critical infrastructure and services. The British, French and Dutch governments are addressing shortcomings in the existing water system; the British and U.S. governments are assisting in the repair and expansion of the gas distribution system; and the French government is preparing an assistance package for Sarajevo's electricity system.

A window of opportunity does exist, however, to begin providing support to the city of Sarajevo in *planning* for reconstruction and reform. Despite the city's limited access to information, there does remain a significant pool of skilled human resources in Sarajevo to plan and execute the rebuilding of the city, provided the city receives adequate support, resources and capacity-building assistance. Not only do the human resources exist within the city to prepare for reconstruction, but some of the local planners and other technicians appear to be even underutilized due to lack of interagency coordination, restricted access to information and minor but critical logistical constraints. In fact, to retain existing resources and perhaps even encourage those who have already departed to return, opportunities to engage in meaningful work at an adequate wage need to be provided.

Improvements in interagency coordination, as noted above, would help to more effectively utilize staff as well as possibly improve the provision of basic infrastructure and/or services. While the SCS has taken a much needed and valued lead role, this leadership also appears to have had the effect of sidelining some DRDS/city staff and departments -- a situation that does not contribute to the most effective overall planning effort. Clarification of the roles of various involved organizations in meeting emergency requirements and framing overall reconstruction plans would be beneficial. USAID and other donors should also support the process of institutional and policy reform that will be necessary for Bosnian national and local authorities to effectively assume leadership of reconstruction efforts once peace is achieved.

While all city departments and public enterprises welcome information on alternative management models and techniques, the area in which the city government of Sarajevo requires the most amount of assistance is in financial management and, more specifically, in designing and installing completely new financial systems and approaches. This would include assistance in: redefining the types of services that the city can sustain and their financial implications; reestablishing revenue flows that take into account the lack of employment opportunities and hence income to serve as a revenue source; mobilizing and managing non-grant finance; and designing new salary and benefit packages for public employees.

The team made several recommendations, assuming that: the resolution of the larger conflict will be achieved in the not too distant future; logistically based assistance other than a high priority, emergency variety will not be possible; and USAID seeks to support the city and national government in preparation for reconstruction. The recommendations were to first support

planning and design including to: provide direct financial support to the SCS and DRDS for emergency and long-term reconstruction efforts; provide design support for reconstruction projects to be executed by local firms; and conduct workshops to promote information sharing among Bosnian and international organizations. Second, the team recommended information exchange that would provide Bosnian officials with information on legal and policy matters as well as provide Sarajevo city government officials and staff with a wide variety of information related to urban planning and development, city management and finance, and reconstruction. Third, the team recommended that USAID support technical exchanges involving both Western expertise in Sarajevo as well as Bosnian officials and staff visiting the U.S. Finally, the team recommended that particular assistance be provided to the city of Sarajevo in improving their management capacity.

The team noted that, while European countries and the UN will continue to play key roles in the negotiation process, the U.S. is viewed by the city as a preferred source for alternative economic, political and institutional models. As a result, the U.S. has a significant role to play in supporting peacekeeping and eventual reconstruction efforts as outlined above and detailed in the report.

I. OVERVIEW

A. SCOPE OF WORK

In response to a USAID request for service (RFS) dated August 5, 1994, International City/County Management Association (ICMA) consultants Dave DeGroot (Urban Management Specialist) and Michael Green (Municipal Engineer) assessed the capacity of the government of the City of Sarajevo and relevant local and international organizations to manage the reconstruction and delivery of services and infrastructure in Sarajevo. The original scope of work for this assessment has been, to a certain extent, overtaken by events. In briefings held immediately upon completion of the Sarajevo fieldwork, Dave DeGroot presented recommendations for action that are, as of this writing, already being acted upon. While fully addressing all items contained in the original scope of work, this report is primarily action-oriented, with specific emphasis on types of support that can feasibly be provided in the near term.

B. BACKGROUND

The plight of Sarajevo has been well documented and will not be recapitulated in this report. Several key items of background information are necessary, however, as a basis for the analysis and recommendations that follow.

The sociopolitical transformation that has been under way in Central and Eastern Europe and the Newly Independent States (NIS) throughout the 1990s has virtually bypassed Sarajevo and the rest of Bosnia as a result of the war. The relative lack of information on the rest of the region combined with the inability to undertake reforms during a state of war has had several key implications. First, Sarajevo has a long history of significant achievements of which the citizenry is justifiably proud. With the demise of communism, most Sarajevans were looking forward to truly becoming "part of Europe," not only in geographic but also in social and economic terms. They eagerly anticipated—as they still do—a new era of open participation in Europe and the world. This is particularly true in the professional and business communities, which played key roles in staging the 1984 Winter Olympics—a source of great local pride. The prolonged war has caused devastation and death on an appalling scale but it has also created an immense sense of frustration at being denied the opportunity to reform and embark in new directions.

A second key point is that the degree to which the people of Sarajevo are cut off from the rest of the world is profound. While supplies and the basic necessities of life generally find their ways to the city, technical information, models, and ideas generally do not. Thus, in their state of siege, Sarajevan decision makers have limited access to support for their efforts—which continue even in the midst of war—to restructure their institutions and plan for reconstruction and beyond.

A third key point is that, despite some reports to the contrary, a significant pool of skilled human resources remains in Sarajevo, as described in later sections of this report. It is important to note that these skilled people have, by and large, freely chosen to remain in Sarajevo. Despite the siege, there are avenues available for fleeing the city, but these avenues are not being taken by many people for simple, patriotic reasons. The situation in Sarajevo today is that, by comparison to many, if not most, countries in which development professionals are accustomed to working, there is a more substantial human resource pool available to plan and execute the rebuilding of the city. Providing the right type of support to this resource pool will be critical, not only in successfully implementing eventual reconstruction, but also in providing a *raison d'être*, especially over the forbidding winter season.

A fourth key consideration is that, given the siege and the imminent onset of winter, the possibilities for undertaking major civil works in the next 6 months are extremely limited. As correctly identified elsewhere by the USAID Representative and members of the UN Special Coordinator for Sarajevo's (SCS) staff, near-term efforts to provide logistically based aid should focus on the key items—food, water, electricity, gas, and medical supplies—that are required for the citizens of Sarajevo to survive another winter. The supply of even these basic goods and services is subject to the whims of the forces that besiege the city; all capital investments in Sarajevo are, at this point, very much at risk. However, this desperate situation provides an window of opportunity, of sorts, to use the winter to support planning and reforms that will lay the foundation for reconstruction, when peace does eventually arrive.

A final consideration is that the politics of the situation in Bosnia are complex to the point of impenetrability. Aside from the larger conflict, the situation in Sarajevo is itself characterized by innumerable strands of subtle presumption and significant friction. The key actors in this delicate situation are, to a large extent, European. While the U.S. obviously has significant roles to play in supporting the peacekeeping operations and the eventual reconstruction efforts, it seems clear that European countries and the UN will continue to play key roles in the negotiation process.

At the same time, however, many Sarajevans look to the U.S. as a preferred source for alternative economic, political, and institutional models. This preference is largely based on the perception that the U.S. has only a moral and/or humanitarian stake in Bosnia and can be relied upon, therefore, to provide objective support to the reform and rebuilding efforts. Provision by the U.S. of exactly this type of support—free of complicating historical and present-day associations—could be crucial in assisting the city and the country in preparing for, and moving toward, peace.

II. THE EXISTING SITUATION

A. GENERAL

While a detailed analysis of the conditions on the ground in Sarajevo was not part of this assignment (these are detailed in the May 1994 U.S./UK report and in various analyses prepared by the SCS staff), the team found the supply of services in the city during early September to be better than might have been expected.

The present population of Sarajevo is estimated to be at 350,000, which is approximately 200,000 less than the pre-war total. Despite extensive damage to buildings and infrastructure throughout the city, this diminished population generally has access to some level of all basic services, as discussed in more detail below. The major concern of city administrators is to ensure that services and supplies are sufficient to survive the coming winter. UN airlifts and land convoys are providing food and other consumables adequate to meet the immediate needs of the population, but strategic reserves of basic items are limited. Of the approximately 40,000 "social" (i.e., publicly administered) housing units outside Serb-controlled areas, about 50% are destroyed or in need of repair in order to be habitable during the winter months. While temporary repairs to housing and infrastructure are being made throughout the city, the fundamental risks to the population continue to be Serbian control of land routes and supplies of bulk water, gas, and electricity.

B. STATUS OF KEY INFRASTRUCTURE AND SERVICES

With the formal establishment of the SCS in April and the government's complementary Directorate for the Reconstruction of Sarajevo several months later, a great deal of progress has been made to identify and begin addressing critical infrastructure and service needs. A full listing of 144 identified action projects is shown in **Annex B**. Summaries of the status of key services and infrastructure as of early September are described in the following section.

1. Water

The Bacevo well field, supplying 80% of Sarajevo's pre-war consumption, is controlled by the Serbs. Extensive damage inflicted early in the war has been repaired, and full delivery capacity could be re-established by the end of September provided that further destruction is avoided. The Soros foundation has provided two emergency treatment plants which are being installed in areas under control of Bosnian authorities; one plant is fully operational and another is expected to be so in October.

Given continued supply from the Bacevo well field, bulk water supply to Sarajevo will not be a problem, particularly since industrial demand is now virtually nil. However, it is estimated that up to 70% of total supply is being lost through leaks in the distribution system, for which both the

British and French governments are providing detection and repair requirements. In addition, up to 25% of the present population resides in high-rise buildings in which local pumps are inoperative. The Dutch government is considering remedial measures for these pumps.

Most Sarajevan households are connected to the city's combined sewerage and storm water system. Blockages are occurring in this system due to lack of consistent flows and maintenance, and raw sewage overspill could occur, especially during rain storms.

2. Gas and District Heating

British and U.S. government aid is assisting in the repair and expansion of the gas distribution system in the city, to which more than half of all households have access. However, the main transmission line traverses Serb-controlled territory, and supply is subject to interruption at any time. Negotiation of a reliable supply agreement is essential to the population's survival during the winter.

3. Electricity

The electricity distribution network within Sarajevo covers both Bosnia- and Serb-controlled areas and must, therefore, be maintained in an integrated manner. Supply in September was about 50 MW daily, less than one-fifth of pre-war levels, and only 50% of the supply that will be required during winter. To meet the anticipated winter demand of at least 100 MW daily, repairs to the main 110 kV transmission line and a doubling of generating capacity will be required. The French government is preparing an assistance package; continued cooperation between both sides in the conflict will be required.

4. Solid Waste

The city's dump site is under Serbian control, the majority of refuse collection vehicles are damaged and inoperable, and there is an inadequate supply of fuel and oil to operate the remaining vehicles. Provision of new or used vehicles, spares, and fuel will all require agreement with the Serbs.

5. Public Transport

More than 50% of the pre-war rolling stock has been damaged beyond repair, and operation of the remaining trams and buses depends upon the supply of electricity and fuel, respectively, and provision of spare parts. The main tram line (which runs for some distance directly through the infamous "Sniper Alley") and about 15 buses are functioning. However, agreement with the Serbs for regular supply of the necessary inputs will again be required to maintain even the current, much diminished level of service.

6. Health Care and Education

The UN and international non-governmental organizations (NGOs) have restocked most medical supplies in the city, and a number of hospitals and clinics are functional. Many schools are also operating, although frequently from very makeshift premises that will be hard-pressed to withstand the winter cold. Barring major new damage to physical facilities or disruption of supply lines, basic health care and education should be sustainable.

C. SUMMARY

As can be surmised from the foregoing, the general situation in Sarajevo in early September was tenuous but livable. It also appears that all the capital investments that can prudently be made to improve Sarajevans' living conditions in the coming winter are either under way or being processed for imminent implementation by various international agencies. The tenuous situation, however, probably only adds to the city residents' feelings of frustration about the degree to which their fate is controlled by outside forces. It is for this reason, among others, that support to the city government over the long winter to plan for reconstruction and eventual resumption of "normal" life is of such great importance.

III. INSTITUTIONAL ROLES AND CAPACITIES IN RECONSTRUCTION PLANNING

To understand the potential role of the Sarajevo city government in planning for the reconstruction of the city, it is necessary to describe briefly this and several other key institutional actors in the city.*

A. THE SPECIAL COORDINATOR FOR SARAJEVO

The office of the SCS was established under UN auspices in April 1994 and is headed by retired U.S. Ambassador William Eagleton. The SCS administers a newly established trust fund for reconstruction in Sarajevo, to which about \$70 million has so far been pledged. When the trust fund is fully operational (final details were being worked out in early September), it will function as a central account from which donor contributions will be deployed to meet priority needs.

In addition to serving as liaison with the Bosnian government, UNPROFOR, the Serbian forces, and international agencies, the SCS office provides seven action groups that coordinate planning to meet the city's requirements for: 1) water and sewage; 2) gas, energy, and heating; 3) electricity; 4) civil engineering; 5) municipal services; 6) city development; and 7) education and health. Each of the action groups is headed by expatriate managers assigned from various international organizations. The Action Plan produced by the SCS, as presented in **Annex A**, includes more than 140 projects across the seven action areas, prioritized as either urgent or transitional.

B. DIRECTORATE FOR RECONSTRUCTION AND DEVELOPMENT OF SARAJEVO

The Directorate for Reconstruction and Development of Sarajevo (DRDS) is the division within the recently created Ministry for Reconstruction responsible for Sarajevo. The DRDS, which was organized and staffed in August 1994, acts as the Bosnian counterpart agency to the SCS action groups housed in the office building of the DRDS Director's engineering firm, Hidrogradnja. The majority of the 30 DRDS technical staff positions are filled through assignments from the city government and its public utility companies, as well as from Hidrogradnja, which is probably Bosnia's leading engineering firm, having undertaken many large and complex projects overseas, primarily in Islamic nations.

In early September, DRDS had been functioning for only a month, and working relations with the SCS action groups had not yet been fully established. The DRDS director appears to be fully involved with his counterparts in the SCS, but the DRDS technical staff, dispersed among other offices around the city, maintain varying degrees of coordination with the SCS action groups.

See **Annex A** for a list of all persons met by the ICMA team.

C. AGENCY FOR INTERNATIONAL COOPERATION FOR THE RECONSTRUCTION AND DEVELOPMENT OF THE REPUBLIC OF BOSNIA AND HERZEGOVINA

The Agency for International Cooperation for the Reconstruction and Development of the Republic of Bosnia and Herzegovina (AICReD) has also been established very recently, and its operational strategy is still in the formative stage. Operating from the Office of the President, the general objective of AICReD is to facilitate international participation in Bosnia's reconstruction. In August, the AICReD director chaired a meeting at the World Bank to introduce international donors to the new organization. Among the strategic options being considered is the possibility of AICReD operating as, or fostering the creation of, a Bosnian development bank.

The relationship of AICReD to other organizations currently involved in reconstruction planning and implementation is still being worked out, but AICReD is clearly intended to play a higher-level role, including coordination with the World Bank/IMF, the European Bank for Reconstruction and Development (EBRD), and various bilateral and UN agencies. At this point, however, Bosnia is not a member of the World Bank, thus limiting the assistance, other than technical, that the Bank can offer. A key objective of this AICReD will be the integration of Bosnia's economic and infrastructure planning within the region.

D. THE SARAJEVO CITY GOVERNMENT

Figure 1 presents the current organizational structure of city government in Sarajevo. This structure is little changed from the pre-war model operating in the former Yugoslavia. The city's parliament comprises 89 members representing eight political parties elected at large from the city's 10 municipalities, one of which is fully under Serbian control. The municipalities, in turn, are led by councils with members elected from the 80 "communities," or neighborhood councils, which are the fundamental representative organizations in Sarajevo.

The city government is organized into 11 secretariats, four institutes, and nine public enterprises. Management is provided through an Executive Board chaired by a president and including four vice presidents with specific sectoral responsibilities. The secretariats provide administrative and technical support to the Board and the parliament, while the four institutes address key aspects of city planning and development. Additional details concerning key institutes and public enterprises are provided below and in **Annex C**.

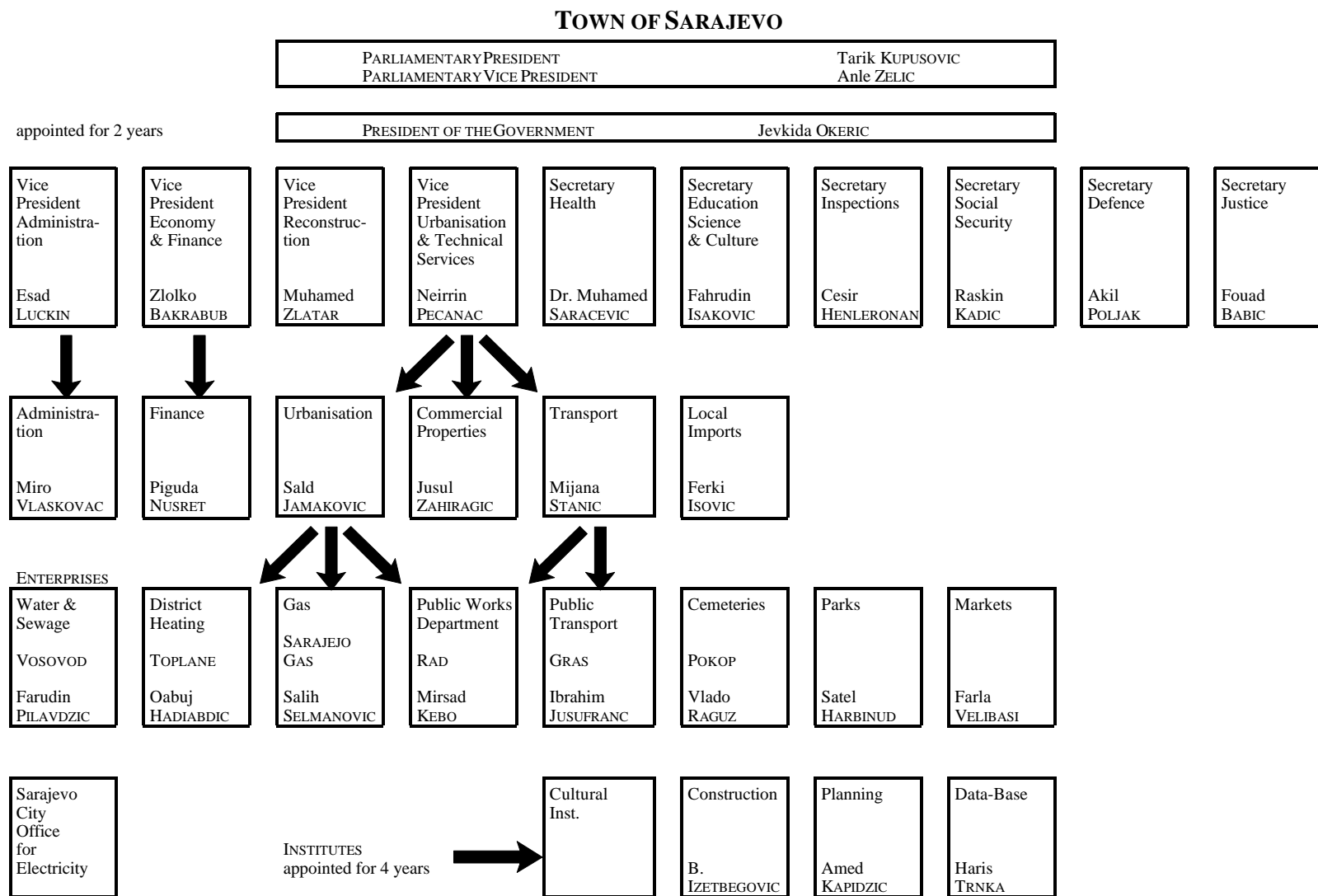


Figure 1

1. The Key Institutes

The Institutes of Town Planning, Development of the City, and Information and Statistics play key roles in planning and managing Sarajevo's reconstruction. These organizations are not true institutes in the Western sense, as they are not autonomous in terms of their budget or operations. However, the institutes do exercise a substantial degree of independence in developing plans and procedures within broad mandates supplied by the parliament and Executive Board and are subject to the approval of those bodies.

The **Town Planning Institute** was established 40 years ago and includes two main departments, one for Spatial Planning and Urbanism and one for Economic Planning. The Institute is responsible for drawing up general guide plans, which have had a 20-year horizon in the past. The current guide plan, which will obviously require substantial revision due to the war, covers the period 1986-2015. Detailed plans for specific infrastructure and service requirements are developed with each municipality; in the past, each municipality typically has had about 10 detailed plans addressing various subsectors. The Institute also monitors local development in accordance with these plans.

Although its staff is depleted by wartime requirements, the Town Planning Institute retains a core of well-qualified personnel. Key near-term objectives include gaining access to Western planning methodologies and examples of reconstruction planning in similar instances of widespread urban devastation, and reviving local economic production through new investment.

The **Institute for the Development of the City** manages all city-initiated construction activities. This Institute prepares project briefs; invites design and supervision proposals from project management firms; and supervises the preparation of tender documentation, evaluation of bids, and contract award and implementation. It also inspects and certifies works in progress for which it collects fees that are remitted to the city's central coffers. The approach to tendering and construction followed by the Institute generally conforms to Western models, although evaluations and awards commonly are made on a more informal basis than in the West. In essence, the Institute seems to have "spread the work around" among firms which it knows are qualified and capable.

This practical but relatively informal approach, in concert with socialist methods of preparing cost estimates (including heavy multipliers for social benefit payments), has contributed to some early misunderstandings among the Institute, local contractors, and international organizations seeking to contract for public works. In detailed discussions with the Institute's Director, it became clear that these misunderstandings were based primarily on a lack of information about how each side does business. Therefore, a top priority in assisting the city in preparing for reconstruction will be to work with this Institute to develop competitive bidding systems as well as appropriate contract and reporting mechanisms. The Institute's director is keen to receive this assistance and make necessary changes.

The **Institute for Information and Statistics** is the city's computer center. It has managed to relocate a significant amount of hardware from its former, bombed-out office and retains six highly qualified computer engineers, as well as additional professional support staff. This Institute played a critical role in city management before the war, handling 45,000 accounts on a monthly basis. It will play an equally crucial role in the reconstruction process, provided that it receives limited hardware and software support and necessary information. Support in retaining its skilled staff, whose expertise is readily marketable outside of Sarajevo, must also be provided.

2. The Key Public Enterprises

Four city-owned public enterprises and the city department of the state electricity distribution company will also play key roles in the reconstruction of Sarajevo. More details on each of these organizations are contained in **Annex C**.

Water supply and sewerage in the city are managed by "**VIK**," which is also known as **Vodovod**. Before the war and the period of hyperinflation immediately preceding the war, VIK had a solid record of viable management and demonstrated a good record of environmental management through, in part, a World Bank-assisted project to limit waterborne pollution.

The city cleaning enterprise is known as "**RAD**" and is charged with, among other tasks, solid waste management. As mentioned above, virtually complete rehabilitation of equipment as well as designation of a new sanitary landfill site will be required.

Transport and distribution of gas for heating within the city are managed by "**Sarajevogas**." Before the war, this enterprise had operated on a fully sustainable basis under pricing policies that directly reflected international market prices for gas. As noted above, the ability of this enterprise to function is entirely dependent upon the operation of transmission mains through Serb-held territory.

The central heating systems for about 40,000 residential units in publicly owned medium- and high-rise apartment blocks are managed by "**TOPLANE**." Again, power to provide heat depends entirely upon agreement with the Serbs. The same is true for **Electro-distribucija Sarajevo**, the city department of the national electricity supply company.

As discussed in more detail in **Annex C**, all of these enterprises have retained a core of skilled staff, have records of sustainable management, and are open to—and indeed desirous of—information and models describing management alternatives. Even during the war, these enterprises have worked with the Town Planning and Statistics and Information Institutes to propose a central, computerized billing system for all municipal services.

3. City Financial Management

Of all the key city government functions, the system of financial management practiced by Sarajevo under the former socialist regime is probably most different from Western systems.

Annex D presents the 1991 Summary Statement of Sarajevo's Income and Expenditures, the last year for which reliable data are available. As can be seen from this summary statement, the city's revenue base was heavily dependent upon remittances from central government and many traditional sources of income in western cities (e.g., business permits) were not tapped under the former socialist regime. The city government does not have substantial experience with systematic approaches to raising and programming investment capital, nor is municipal finance an area in which local expertise can be said to be well developed.

It is in the area of financial management, therefore, that the city government probably requires the greatest amount of assistance in designing and installing completely new systems and approaches. This task will be critical to the eventual reconstruction effort in a number of respects. First, almost all sources of city revenues have been thoroughly disrupted.

Re-establishing revenue flows will require sensitive planning given the lack of productive employment opportunities available to most Sarajevans.

Second, enormous resources will be required to rebuild Sarajevo, and it is unlikely that donations will be adequate to address these requirements. As the national government attends to national reconstruction needs, the alacrity with which Sarajevo can access non-grant sources of finance will have a significant impact upon the pace of city reconstruction. In order to mobilize and manage non-grant finance effectively, the city—probably in coordination with AICReD—will require expertise it does not now possess.

Finally, the city will need to design new salary and benefit packages for public employees and redefine the types of services, and financial implications thereof, that government can reasonably be expected to sustain for citizens. These are fundamental issues, the resolution of which must underpin the eventual physical reconstruction program for the city.

4. City-Owned and -Managed Housing

As noted above, the city owns and/or manages about 75,000 residential units, about 40,000 of which are in territory still under Bosnian control. While 50% of this housing stock requires replacement or repair, the city is already examining ways to privatize ownership and has drafted extensive legislation to this effect. In drafting this legislation, the city has had very little access to experience elsewhere. In addition, no housing finance institutions have ever operated in Bosnia.

IV. KEY ISSUES

The key issue facing Sarajevo and Bosnia is, of course, resolution of the conflict. Achievement of such a resolution is not within the control of Sarajevo city authorities, and in the current uncertain situation, capital investments in other than survival-related reconstruction projects (even if necessary equipment and materials were available, which they are not) is risky. *Planning* for the reconstruction of Sarajevo is, however, within the capacity of the city government and other relevant agencies, assuming that limited assistance can be provided over the near term. The key issues to be addressed in promoting effective reconstruction planning in Sarajevo include the following.

A. ROLES

There appears to be a lack of clarity as to the roles of the various organizations involved in reconstruction planning for Sarajevo. The SCS office is clearly the lead organization for the international community and the UN, while DRDS—in which the majority of staff are assigned from city government—plays the lead role for the Bosnian government, both for the Ministry of Reconstruction and the city.

To date, the SCS action groups have taken the lead in assessing the needs for urgent reconstruction in Sarajevo in coordination, since August, with DRDS. In addition, the SCS administers—in consultation with local and national officials—the newly established trust fund as provided for in the relevant UN resolutions. The lead role played to date by the SCS office has obviously been necessary in identifying urgent rehabilitative measures and marshaling international support as quickly as possible. But this leadership role also appears to have had the effect of sidelining some DRDS/city staff and departments, a situation which does not contribute to the most effective overall planning effort.

Clarification of the roles of the various involved organizations in meeting emergency requirements and in framing overall reconstruction plans would probably be beneficial for all concerned parties. Presumably, the SCS action groups are oriented toward emergency rehabilitation which can only be accomplished with immediate international aid under UN auspices. On the other hand, it may also be presumed that, when peace is achieved and comprehensive reconstruction commences, Bosnian national and city authorities will take the lead with technical and financial assistance from international sources. It would follow, therefore, that planning for comprehensive reconstruction should, capacity permitting, be a Bosnia-led effort from the outset.

B. HUMAN RESOURCES

Availability of skilled human resources does not appear to be an immediate constraint upon planning for reconstruction. On the contrary, it appears that local planners and other technicians

are, in some cases, actually underutilized at the moment because of lack of interagency coordination, restricted access to information, and minor but critical logistical constraints.

Sarajevo and Bosnia cannot afford the emigration of any more skilled human resources. To retain existing resources and encourage the return of those already departed, two key issues must be resolved. First, the opportunity to earn a minimal wage must be available. Government employees are currently earning DM 1 monthly. Many individuals without sources of outside income—primarily remittances—have had little choice but to emigrate when possible. There is general agreement that if a flat wage rate of about DM 600 (US\$400) could be made available, many skilled Bosnians would gladly return to their former jobs if there were work to do.

The second key issue in preserving local capacity, that of ensuring the availability of useful work, will be difficult to achieve in most sectors under current conditions. The insecurity of supply routes will continue to prevent resumption of all productive activities that require resources not available in Sarajevo or depend upon markets outside of the city. This circumstance makes all the more important the resumption of any other useful activities, including planning for reconstruction that are not dependent upon outside inputs. The types of readily transportable information, expertise, and limited logistics required to support comprehensive reconstruction planning are itemized in the next section of this paper.

C. INSTITUTIONAL CAPACITY

Assuming resolution of the issues above in the form of a mandate for local agencies with appropriate international support, to proceed with a comprehensive reconstruction planning process for Sarajevo, the final key area to be addressed involves helping the city to redefine the ways in which it will be organized and operate when peace arrives. Sarajevan officials are clearly competent but are constrained by their limited knowledge regarding: a) alternatives for organizing and managing in general; b) the implications of Sarajevo's role as a federal capital; c) the experience of other Eastern European countries and cities in making the transition from socialism; d) the ways in which international agencies and assistance programs operate; and e) concrete examples of dealing with urban reconstruction following widespread devastation.

Therefore, the reconstruction planning process in the city must explicitly include assistance to the city government in reforming its own structures and operations as an integral part of planning for and eventually implementing and managing a reconstruction. The key objective of this assistance must be determining the methods by which Sarajevo will sustain the services and infrastructure it rebuilds.

V. RECOMMENDATIONS

The following recommendations are proposed for USAID's consideration for near-term implementation, bearing in mind three key assumptions: 1) resolution of the larger conflict will be achieved in some form in the not too distant future; 2) in the meantime, logistically based assistance of other than a top priority, emergency variety will not be possible; and 3) USAID, either bilaterally or in conjunction with other donors, seeks to support to the degree possible city and national authorities in their preparations for reconstruction. Given these assumptions, there are three key areas in which assistance should be provided. As these recommendations have been discussed at some length with USAID officials, summaries are presented below.

A. SUPPORT FOR PLANNING AND DESIGN

Support for planning and design would take several forms, as described below:

1. General Support to the SCS and DRDS

A direct financial contribution by USAID to support the operations of these critical offices would be highly effective. As a contributor, AID would presumably be in a position to assist these agencies in facilitating the most effective approaches to Sarajevo's emergency and longer-term reconstruction planning efforts.

2. Design Support

A matching direct contribution to the trust fund earmarked for detailed design of reconstruction projects to be executed by local firms would begin to address the issue of productively utilizing local technical capacity. The following criteria for award of design work should be considered:

- i) Projects to be designed should, in the first instance, be limited to basic services required for survival. These include gas and electrical distribution systems, water supply, and the central heating units in the major apartment blocks. If funding is more than adequate, then second-priority project design—probably focusing on industrial and productive rehabilitation—should also be supported.
- ii) For each project to be designed, some form of competition among design firms and organizations within Sarajevo should be required, and public or quasi-public agencies should not be excluded from this competition.
- iii) Design fees should probably be calculated as a percentage of project cost according to international norms, thereby beginning to establish an acceptable basis upon which future works contracts could be awarded.

3. Workshops

Support for a series of workshops designed to promote sharing of information between Bosnian and international organizations would be useful in establishing more effective coordination of efforts and utilization of capacity. Consideration should be given to channeling a modest grant for this purpose through one of the NGOs already well established in Sarajevo in conjunction with the Business Faculty at the University and AICReD. An initial series of workshops should feature donor presentations covering their operating methods, organizations, and strategies for Bosnia resulting in a sort of "donor directory." A second round of workshops could deal with the procedural aspects of preparing proposals, disbursement and reporting requirements, contracting procedures, etc., leading to identification of specific areas in which adaptations in local procedures would be required. Successful execution of these workshops in the near term would greatly expedite implementation of the eventual reconstruction program.

B. INFORMATION EXCHANGE

There is a critical need to provide Bosnian officials, and particularly the Sarajevo city government, with a wide variety of information related to urban development, city management, planning, and reconstruction. There is a similar need for city and national government officials to have access to outside advice in reviewing draft legislation and policies, investment plans, and other key documents. Finally, in order for information to be utilized effectively in Sarajevo, it will be necessary to support the local capacity to receive, translate, reproduce, and disseminate information.

USAID is in an excellent position to achieve these ends through, at least initially, utilization of the indefinite quantity contracts (IQCs) and other contractual mechanisms managed by the Office of Environment and Urban Programs. It should be possible to use these contracts to assemble quickly a very significant data base, as follows.

1. The Data Base

This should include relevant reports on all aspects of city management, including planning in general and for reconstruction, and information on the transitions that have been going on in cities throughout other Eastern European countries. Assembly of this data base will require solid research, so that only the best, most useful documents are sent out; this suggests the appointment of a research coordinator in one or more of the IQC firms to pull the overall material together. The actual information transfer should take place in several phases to ensure that Sarajevans are not buried under a mountain of data and to allow time for the U.S. firms to assemble high-quality bibliographies.

Key areas for initial phases of the data base transfer would include:

- examples of administrative and political structures in other cities, with emphasis on federal districts (this could include strong county executive setups);
- critical evaluations of the kinds of problems federal districts have historically encountered;
- examples of city revenue and tax bases, with emphasis on business licensing and taxation, one of the sources the Sarajevo city government could start to tap, even under present conditions;
- examples of reconstruction planning and implementation in other situations of similar widespread destruction;
- information on contract preparation, bidding, and award procedures that conform to international donor standards;
- information on reintroducing a market-driven wage scale (this information may be a bit esoteric, but presumably this issue has been addressed in other Central and Eastern European countries);
- comparative overall transition experiences in selected Central and Eastern European and Newly Independent States countries, with emphasis on providing the Bosnians a good understanding of the breadth of reforms required elsewhere and some sense of the way in which reform programs have been prioritized; and
- examples of city investment guides, particularly inventory approaches that identify individual enterprises looking for partnerships to grow.

This core of high-priority information could be the first phase of the data base to be transferred, and subsequent phases could then be tailored to bring in both more general and more specific information in response to requests that develop on the Bosnian side.

2. Translation, Reproduction, and Dissemination

This key task can be undertaken by the city's Institute for Statistics and Information. To accomplish this task, the Institute will require the hardware itemized in **Annex E**. Laptops are specified for two practical reasons: 1) they can be easily removed in case of attack; and, 2) virtually all qualified English translators in Sarajevo have regular employment with the UN and other international organizations and will need to work at home, using laptops in the evenings and on weekends to translate the data base. Several modems are also included in the **Annex E** list; these will enable the Institute to transmit translated documents to other offices around the city without exposing Institute personnel to unnecessary risks inherent in traveling, which must be

done on foot because of the scarcity of gasoline. In addition, the city phone system is functioning adequately to support modem utilization. The balance of the items in **Annex E** are essentially consumable hardware and updated software to which the Institute has had no access since 1992.

Provisions will also need to be made to compensate the Institute for the costs of translation, reproduction, and dissemination of the data base. Preliminary discussions with the Institute's staff indicate that a single unit price per page of translated and disseminated material can be calculated covering all direct costs (e.g., DM X per page). The hardware and software are critical, not only to this task but generally to rejuvenate the city's capabilities. Presumably, the necessary compensation can be handled through one of the existing IQCs or other contractual mechanisms available through ICMA and/or other contractors, as appropriate.

3. Referrals

The information exchange should be a two-way street. The city needs immediate technical reviews of draft housing privatization legislation, the draft city investment guide, and a variety of other policy proposals. Therefore, it is recommended that consideration be given to providing, through the IQCs or other contracts, the capacity to undertake U.S.-based reviews of key documents from Sarajevo as required. It may also be useful to secure Washington-based translation services so as not to overtax the translators in Sarajevo.

C. TECHNICAL EXCHANGES

Although it is obviously difficult to get in and out of Sarajevo, it can be done. Consideration should be given, therefore, to technical exchanges involving both Western expertise in Sarajevo, and Bosnian experts visiting the U.S.

1. Priority Areas for Technical Assistance

A high priority should be given to provision of technical assistance to the city government in the following areas:

- policy frameworks to promote the growth of productive enterprises;
- a variety of approaches to local revenue generation, including methods for calculating public utility tariffs;
- specialized reconstruction planning expertise, including geographic information systems (GIS);
- international standards for contract preparation, prequalification, bidding, award, and supervision;

- federal districts and city administrative reorganization in general;
- housing privatization, including experiences to date in surrounding countries;
- accountancy standards, practices, and organization for transparent financial management and reporting;
- a comprehensive evaluation of computer needs for effective participation in reconstruction planning and revived city management; and
- a specific package of assistance to AICReD to support its strategic planning exercise and determine hardware and software requirements.

All technical exchanges should be bundled in order to limit the number of persons at risk to the greatest degree possible. Multidisciplinary expertise should be sought where possible, and it would be necessary for any technical assistance providers to be familiar with working under fairly stressful conditions. TA providers going into Sarajevo should, to the extent possible, do double duty as "pack horses" for data base information and hardware and software requirements.

2. Study Tours

There are three top priorities for study tours. The first would be to bring Bosnian government enterprise and utility managers to the U.S. to confer with their counterparts in various public utilities. A second tour would emphasize exchanges with U.S. city and county managers, and should include exposure to the challenges faced by the District of Columbia; contact with cities that have successfully spurred business investment; and a variety of approaches to city planning, revenue generation, and financial management. A third set of tours could focus on Central and Eastern European experiences with the transition from socialism.

All study tours should include an adequate number of translators and should take into account the fact that many Bosnian officials will have little or no access to foreign currency.

D. MANAGEMENT

While the recommendations above are modest, implementation will require additional management capacity, particularly in Sarajevo. At present, USAID has no staff, office space, equipment, or vehicles in Sarajevo. Some basic resources will surely be necessary if USAID is to deliver effectively even the modest assistance suggested here. Very qualified Bosnians are available and willing to work; even if no permanent U.S. personnel are contemplated, employment of two or three local staff members—including a translator—should be given a high priority.

To ensure that effective use is made of the assistance described above and to begin the process of identifying additional areas for assistance, a working committee should be established with the city

government. The exact membership of this committee should be worked out in the field, but it should include representatives from most of the key city institutes and enterprises discussed in this report as well as from the city's Executive Board. Participation by AICReD might also be useful; presumably, DRDS could be represented through one or more of the city government's seconded staff.

E. FUTURE DIRECTIONS FOR ASSISTANCE

While it is impossible to predict when a broader program of assistance will become feasible, there is no doubt that the need for U.S. assistance to the Sarajevo city government is substantial. Therefore, the limited package of assistance proposed above should be viewed as, in part, a familiarization exercise in which both sides gain information necessary to frame future joint actions.

In this regard, USAID should at some point in the first half of 1995 (assuming that conditions in Sarajevo have allowed an active exchange of information and expertise) target production of a more detailed overview of the needs of the city government and allied agencies. This overview should focus on the ways in which physical and institutional reconstruction in the city can be more fully integrated to establish sustainable city operations in peacetime. A fuller investigation of the needs of allied agencies, including AICReD and the Ministry of Physical Planning, Natural Resources and Environment, should be included in this overview.

The key point here would be to treat reconstruction optimistically, as an opportunity for Sarajevo and Bosnia finally to implement the kinds of institutional and systemic reforms that had been eagerly anticipated before the war's advent. USAID's initiation of this process through the limited recommendations contained in this report will provide a critical boost to morale, while simultaneously providing a solid basis for future, more comprehensive assistance programs.

Annex A. LIST OF PERSONS MET: SARAJEVO, AUGUST 29 TO SEPTEMBER 7, 1994

Berina Selimovic
Mehmedbasic
Assistant Secretary for Finance
(City Government)

Said Jamakovic
Secretary of the Secretariat
for Space Planning
(City Government)

Haris Trnka, Director
Institute for Statistics and

Veljko Galic
Assistant in the Urban Section
of Directorate

Azem Ohranovic
Chef de Cabinet
(City Government)

Jovo Andric
Secretary of Executive Board
(City Government)

Sevkija Okeric
President of the City
Government

Bakir Izetbegovic
Institute for City Construction
Manager of action group Civil
Engineering (Directorate
for Reconstruction and
Development of Sarajevo)

Sefket Teskeredzic
Deputy Secretary for Finance
(City Government)

Ragib Karamemedovic
Action Group Database
(Directorate for Reconstruction
and Development of Sarajevo)

Ahmed Kapidzic
Institute for Planning & City Information
Development
(Manager of action group City Development)

Jasminka Osmankovic
Directorate for City
Reconstruction and
Development (Essential Production Group)

Zlatko Bakranin
Economy Secretariat
(City Government)

Jusuf Zahiragic
Secretary of Secretariat for Housing
(City Government)

Munever Imamovic
Minister for Physical Planning,
Natural Resources, and Environment

Mehmed Drino
Hidrogradnja, Sarajevo
Director of Directorate for
Reconstruction and
Development of Sarajevo

Sead Kreso
ACReD
(City Agency for Reconstruction)

Lt. Col. Jacques Perreaux
Manager, Action Group
Electricity
United Nations Protection Force

Ibrahim Jusufranic
Managing Director
GRAS
The City Transportation Company

Pilavdzic Fahrudin
Managing Director
VODOVOD
Water Supply and Sewerage Company

Dubravka Nikolic
Director, Direction of
Scientific-Research Activity
JP Elektroprivreda BiH Sarajevo

Selmanovic Salih
General Manager
Sarajevo Gas

Makarevic S Husein
Head of Public Transport
Action Group

Jean-Baptiste Dupont
Manager of action group City
Development
United Nations Protection Force

Xavier DeVictor
Technical Assistant & Liaison Officer
United Nations Protection Force

Pierre Verstraelen
Manager, Action Group Water
United Nations Protection Force

Phil Oldham
Head of Office
Catholic Relief Services

Sasa Mirkovic
Project Officer
Catholic Relief Services

Mirsad Kebo
General Director
"RAD"
Public Works Department

Niels G Biering
Chief, Non-Metallic Minerals,
Ceramics and Building Materials Unit
UN Industrial Development Organization

Zukanovic Vahid
Director
Centretrans Tranzit

Zijad Kafedzic
Managing Director
UNIS Holding Group

Annex B.**LIST OF ACTION PROJECTS THAT
HAVE RECEIVED INTEREST FOR
FUNDING FROM INTERNATIONAL
DONORS (September 5, 1994)**

Project Ref. No.	Sector/ Project Description	Cost (US\$ mill)	Funds by
	Water		
1	Restore Baveco well field	3.6	UK
2	Develop Sokolovici well field	2.4	Holland
4	Repair mains and isolation valves	12.0	France/UK
8	Purchase water treatment chemicals	0.5	UK
11	Clean and repair sewer system	13.0	Denmark
13	Repair sewage treatment plant	2.0	Denmark
14	Purchase new centrifuge separator and pumps	3.0	Denmark
15	Improve water pumping station	6.0	Denmark
	Electricity		
21	Repair 110kV distribution	9.6	France
24	Purchase spare parts and workshop equipment	1.7	UK
25	Purchase Transformer oil	1.5	UK
27	Restore Kakanj coal mines	8.0	UK
31	Refurbish Kakanj power station	5.3	UK
	Gas, Energy and Heating		
32	Replace makeshift connections	5.8	USA
33	Repair distribution network	1.1	UK
34	Reinstate gas chemical odour	0.2	UK
35	Buy maintenance vehicles & equipment	1.0	UK
37	Prevent land slippage at Zvornic	1.3	UK
38	Repair city gate stations	0.1	Iran
128	Make temp repairs to public heating	1.0	USA

Project Ref. No.	Sector/ Project Description	Cost (US\$ mill)	Funds by
130	Rebuild public heating distribution	4.3	USA
131	Convert district heating to gas	1.8	Holland
145	Supply petroleum products	3.3	Iran
147	Rehabilitate LPG storage facilities	0.8	USA
153	Survey district heating schemes	0.1	Trust Fund
	Municipal Services		
43	Remove 50,000 tons of solid waste	3.5	UK/Japan
44	Buy 14 trucks, containers and equipment	4.4	UK/France
45	Buy compactor/grader	0.7	Trust Fund
49	Perform consultant study — Trolley buses	0.2	Holland
50	Buy 10 trams and spare parts	15.4	Germany
51	Buy 35 buses and mini-buses	4.6	France
(53)	Repair trolley bus system	13.0	(Germany)
(54)	Buy 30 trolley buses	5.1	(France)
(55)	Buy 75 buses and 40 mini-buses	15.1	(Euro-cities)
(56)	Restore suburban bus service	3.5	(Euro-cities)
	Telecommunications		
106	Purchase new 40,000 line digital switchgear	7.0	Sweden
107	Purchase new Exchange at Dolac Malta	0.1	Sweden
108	Repair telephone line	3.0	Sweden
109	Restore satellite link	2.8	Sweden
110	Improve communication system	0.3	Sweden
	Civil Engineering		
101	Build temporary Bijela bridge	0.5	Trust Fund
123	Make temporary school repairs	0.5	Soros Trust
126	Make permanent school repairs	10.0	Soros Trust
60	Remove airport protection berms	0.9	UNPROFOR

Project Ref. No.	Sector/ Project Description	Cost (US\$ mill)	Funds by
61	Repair airport runway/taxiway/ramp	1.0	UNPROFOR
62	Make emergency repairs to airport utilities	0.3	UNPROFOR
81	Repair Ploce-Sarajevo railway line	6.9	Germany
133	Computerize assessment data base	0.3	IMG/IBH
138	Protect historic buildings	2.0	France
	Essential Production		
140A	Restore food industry	1.0	UNIDO
141D	Restart pharmaceutical factory	2.5	US/Germany

Note:

An updated summary of all projects will be presented at The Donor's Conference, to be held in Vienna on September 20, 1994.

Annex C.

MANAGEMENT OF INFRASTRUCTURE SERVICES

A.

WATER AND SEWERAGE

Organization

1. Human Resources and

Pre-War (1991)

Just after the formation of Bosnia as a separate state in 1991, the organization responsible for water supply and sewerage (Vodovod i Kanalizacija) employed more than 1,300 personnel. This company provided water and drainage services within the whole of Sarajevo, including most of the surrounding urban areas, serving a population of nearly 500,000 people. The staff were split up into three separate departments—Water Supply, Sewerage, and Administration—as shown in **Figure 2**. Of these departments, Water Supply employed almost 50% of the staff, leaving Sewerage and Administration with approximately 25% each.

During the Conflict (1994)

With the advent of hostilities, many of the staff had to leave Sarajevo to join the armed forces or left the city in search of peace. As a result, the management reorganized the staffing on a "war-footing" basis, with a planned total staff of 659 persons.

However, during 1992-93, when Sarajevo was effectively cut off from the outside world with no electricity or gas, many more people fled the city. The present line of control has resulted in the water sources, such as the well fields and upland streams, and the sewage treatment plant being in areas under the control of the Serbs. As a consequence, fewer people could be effectively employed. Thus, the present manpower has dropped to only 330 people.

With the present emphasis being on the reconstruction and maintenance of the water supply and distribution system, nearly 65% of the available staff are working in this field, with only 20% in sewerage and drainage rehabilitation and maintenance.

The Administration department has thus been reduced to only 15% from 25% of the total staff, which is understandable considering that no water and sewerage bills to customers and loan repayments to the IBRD have to be prepared.

Although more staff are urgently required to undertake the emergency reconstruction and rehabilitation works because of the lack of maintenance over the past two years, even if workmen were available, they would be understandably reluctant to work for little or no wages.

Figure 2

Staff Organization Charts for Water Supply and Sewerage

VODOVOD i KANALIZACIJA
Executive Board
(1991)

Water Supply Department		Sewerage Department		Administration Department	
Sector	Staff	Sector	Staff	Sector	Staff
Planning, Design, and Supervision	69	Planning, Design, and Supervision	59	Finance and Economics	71
Production and Distribution	248	Sewerage Maintenance	138	Legal, Personnel, General Administration, and Information	110
Electrical and Mechanical	79	Machinery Maintenance	30	Invoice and Revenue Collection	111
Rehabilitation and Development	50	Sewage Treatment Plant	40	Computer Section	13
Maintenance	70	Rehabilitation and Building	58	Development	53
Vehicles and Equipment	128				
Total Staff	644	Total Staff	325	Total Staff	358

VODOVOD i KANALIZACIJA
Director General
(1994)

Water Supply Production and Distribution Department		Water Supply Maintenance Department		Sewerage Maintenance Department		Development and Rehabilitation of Water Supply and Sewerage Department		Administration Department	
Production and Distribution Consumer connections		Pipeline Maintenance Machinery and Electrical		Sewer and Drainage Emergency Intervention		Development Planning Rehabilitation Supervision		Finance and Economics Accounts General Administration Security Legal & Computers	
Planned Staff	188	Planned Staff	164	Planned Staff	103	Planned Staff	87	Planned Staff	117
Actual Staff	80	Actual Staff	112	Actual Staff	50	Actual Staff	39	Actual Staff	49

The Future

In preparation for the end to the conflict around Sarajevo, Vodovod, which manages the city's water supply and sewerage, recognizes that the present planned staff organization will have to be reassessed. It is conceivable that the water supply situation, which at present is a priority and receiving considerable technical and material assistance, will be on a more sure footing. Meanwhile, the sewerage and sewage treatment facilities have received little attention and are reported to need extensive clearing of deposited silt and accumulated solids. Also, with the improved water supply, they will have to find ways to deal with greater quantities of wastewater.

The managers of Vodovod indicated that the design and operation of the sewerage system should be reviewed. The original masterplan used for the IBRD development project included the replacement of the existing combined sewerage system with separate sewerage networks for both waste and surface drainage. This is now considered to be too expensive to implement in full.

With the computer design aids developed over the past 10 years, a more economic sewerage development plan could be produced that could also include pollution control in the river. The sewerage reassessment should be undertaken by Vodovod engineers, who would be required to attend short courses to learn how to use computer programs. Such courses, as well as numerous other courses on sewerage and water supply rehabilitation, are available in the U.S. and UK.

The administration department will be required to reorganize its accounts and billing section with the review and registration of all future customers. This could be greatly assisted by coordinating with the Institute of Information Staff who are working on a computerized data base of all housing units and properties in Sarajevo.

Toward the goal of avoiding duplication of effort in the various city utility departments, they have thus proposed a new model for the collection of payments of the different municipal and public services. This central data base and collection system should therefore allow Vodovod to run a more efficient and economic accounting section.

2. Finances

Between 1976 and 1982, Sarajevo undertook a program of development and renewal of the existing water supply, sewerage, and sewage treatment facilities with assistance from the IBRD. The total project was valued at the time at US\$100 million, out of which US\$45 million was provided as a loan, to be repaid by the year 2002. The loan was underwritten by the former Yugoslavia government, which lent on the funds to the city of Sarajevo.

As part of the agreement for the loan, the financing management was restructured and a revenue pricing policy established that would allow repayment of the loan while ensuring sustainable operation, maintenance, and development. The billing was organized into three separate items covering water supply, drainage, and sewage treatment since not all customers initially received all three services.

Unfortunately, rapid inflation and then hyperinflation cut severely into the revenue received and, by 1986, even with an increased rating structure, there was insufficient revenue to cover the loan repayments. By the end of 1988, Vodovod was so much in debt that the city treasury agreed to pay the gross salaries and the loan repayments from other municipal revenue. A summarized extract from the annual statements of Vodovod for the period 1986 to 1990 is given in **Table I**. When the present war started, all IBRD repayments were frozen.

B.

GAS AND DISTRICT HEATING

1.

Human Resources and

Organization

Figure 3 shows the staff organization of the Sarajevo Gas Company, the departmental structure of which has essentially remained the same since its establishment, although the actual number of staff employed has changed to suit circumstances. As with the other utilities, the available staff at present is only a quarter of that planned before the war in 1991, although the actual number employed in 1991 was only 70%. The requirement for different expertise will change as the gas distribution network becomes more extensive and fewer funds are spent on expansion and development of connections.

A joint team of foreign and local consultants undertook the original feasibility studies, design work, and contract documentation for the gas transmission and distribution, in a form acceptable to the IBRD and for international bidding. The consultants included Sofregas of France and Energoinvest-Petrolinvest of Bosnia-Herzegovina, and the construction company for the transmission line was A. HAK from Holland. The General Manager stated that the expansion of the distribution network within Sarajevo would now be designed by local consultants and implemented by local contractors. This allows the gas company to keep its own staff requirements to a minimum, thereby reducing overhead.

It was also suggested that senior management and technicians need access to information on management techniques and technical procedures and equipment used elsewhere in the world.

Management recognizes that there is a great demand for individual gas connections to each housing unit and that the plans already drawn up for expansion of the distribution system will have to be implemented as soon as the present crisis subsides. It will also be necessary to have in place an efficient accounting and billing system to ensure that revenue will be collected. As with Vodovod, the use of a centralized database for customers could increase efficiency. It is evident that an assessment of the administration and contracting departments' ability to cope with rising demands will have to be made.

Table 1
Main Financial Parameters Taken from
Annual Statements of Vodovod from 1986 to 1990
(in dinars)

No.	Description	Years				
		1986	1987	1988	1989	1990
1	Total Income	4.663.142.022	11.195.441.706	28.507.871.030	546.028.605.660	424.843.342
2	Expenditure	2.925.243.296	7.370.514.263	23.722.049.130	795.594.769.140	411.149.090
3	Profit	1.737.898.726	3.824.927.443	4.785.821.900	—	15.694.252
4	Obligations from Income (IBRD Loan repayment)	1.176.421.798	7.459.661.965	18.294.476.940	*15.057.054.000	* 87.032
5	Gross Salaries	1.570.369.464	3.559.451.258	9.818.962.520	*56.453.278.000	* 132.105.276
6	Funds	—	—	—	—	—
7	Loss	1.008.892.536	7.194.185.780	23.327.617.560	249.566.163.480	—

* After 1988 the City Treasury reduced VODOVOD's loss by financing gross salaries and loan repayments

Figure 3

Staff Organization Chart for Sarajevo Gas Company

BUSINESS BOARD	
PLANNED	9
Nov 1991	7
Sep 1994	2

Directorate	Transmission and Distribution	Construction and Maintenance	Commercial Business	Finance and Economics	Legal, Personnel and Administration
Departments	Development Transmission and Distribution	Measurement and Control Construction and Maintenance Electrical Fire and Safety Vehicle Maintenance	Procurement and Sale of Gas General Procurement, Contracting, and Storage	Financial Affairs Accounting Distribution Planning and Tariffs	Legal Affairs Security and Administration
PLANNED	48	99	25	29	23
Nov 1991	36	53	21	26	19
Sep 1994	14	17	7	7	5

SUMMARY

1. Original planned number of staff pre-war (1991)—
33
2. Actual number of staff pre-war (November 1991)—
162
3. Number of staff during war (September 1994)—
52

Note:

During the emergency reconstruction and rehabilitation program of the transmission and distribution network, IRC and ODA have provided technical assistance to Sarajevo Gas.

The district heating boilers are operated by TOPLANE, for which the management structure could not be obtained. Because of the damage that some of the heating units suffered during the conflict and the urgency to make them operative before the winter, assistance both financially and technically has been promised by USAID and IRC.

2. Finances

During the present war, the offices for the Sarajevo Gas company have been moved many times, and the financial reports and statements were not available for examination. However, before the war, Sarajevo Gas apparently was a successful business which made an annual profit of 2% to 3% on the sale of 120 million cu.m of gas per year, with an import value of about US\$13 million.

To develop the gas network, a loan of US\$30 million was obtained in 1982 from the IBRD which had a loan repayment period of 20 years. In 1992, 50% of the loan had been repaid; since that time, the war repayments have been frozen. The former Yugoslavia was the original loan guarantor, the responsibility for which has now been taken over by the BiH government in a letter sent to the IBRD in September 1992. Annual financial statements detailing revenues and expenditures with business plan reports were sent to the IBRD, and loan repayment installments were reported always to be made in full and on time.

Without the financial statements, it is not possible to comment on how the high rates of inflation affected the Sarajevo Gas revenue returns. It was stated that the gas pricing strategy was tied to the international market price for gas, which fluctuated during the year with prices being more expensive in the winter than in the summer, when demand is lower. To establish the cost of gas to the consumer, an average international price of the gas throughout the previous year was calculated, and the cost for operation and maintenance, loan repayments, inflation and overhead added to it. The future rates will need to be carefully assessed when peace returns and when the population must begin paying for fuel again.

TOPLANE, the district heating organization, purchases gas in bulk from Sarajevo Gas. The gas costs, including costs of operation and maintenance of the boilers and of the hot water circulation network, are passed on to the citizens who benefit from the system. Again, the Institute for Information has proposed that TOPLANE and payments for district heating be linked to the computerized data base for the collection of heating charges.

C. ELECTRICITY

1. Human Resources and Organization

During the short time available for the assignment, it was not possible for Elektroprivreda BiH, with its drastically reduced workforce, to extract staffing and financial data that related

specifically to Sarajevo, nor was it strictly necessary, since the electricity generation, transmission, and distribution are one entity under the authority of the BiH government.

Figure 4 shows the basic staff organizational structure, which in 1991 included more than 18,000 employees within BiH. It contains separate directorates for the three main operations: 1) power generation, 2) transmission, and 3) distribution. With the war, the manpower has been reduced to only 3,000 persons, who operate and maintain the whole system in addition to repairing strategic transmission and distribution lines that have been damaged during the present conflicts.

To assist in the control and synchronization of the electricity generation units and to balance the power supply and demand, a computerized central control system costing US\$18 million, funded by an international lending agency, was installed before the war. This has now been damaged but, with the decrease in costs of computer equipment, it would now be cheaper to replace with up-to-date and more powerful hardware than to repair.

2. Finances

Before the war, the billing system was starting to be computerized, but much of the equipment has been damaged. This was because the electricity distribution control center and administration buildings in Sarajevo were some of the initial prime targets for artillery shelling.

D. SOLID WASTE MANAGEMENT

1. Human Resources and Organization

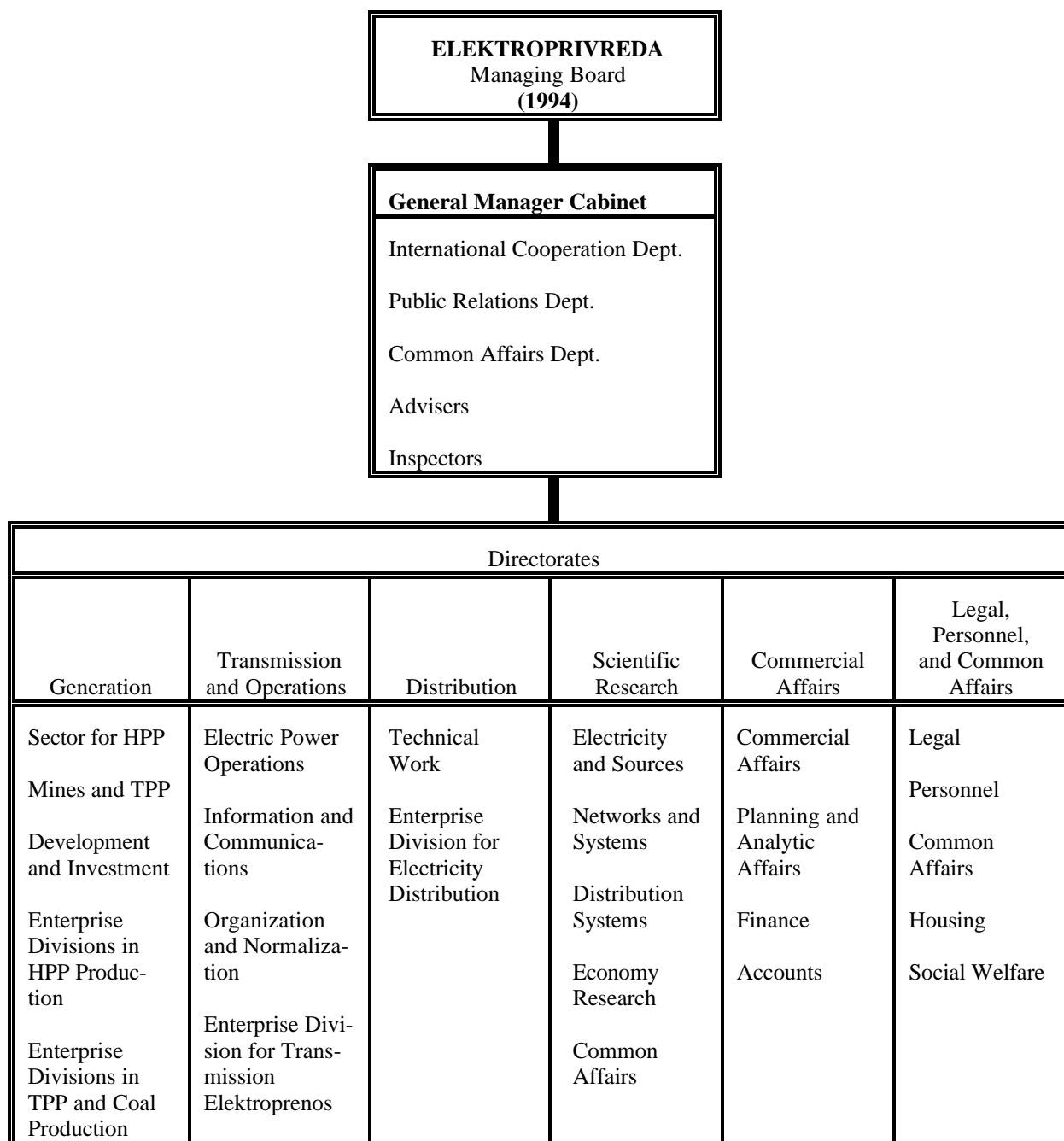
The responsibility for solid waste collection and disposal lies with the Public Hygiene Directorate, which is part of the Public Works Department (RAD). The city authorities appoint the general manager, who proposes the staffing structure to the city authorities for approval. Unfortunately, much of the documentation for RAD was destroyed during the war and so historical data on the organization of staff were not available for inspection.

Before the war (1991), there were approximately 1,200 employees in RAD split into three directorates, similar in structure to that shown in **Figure 5**. This shows the staff organization as presently planned (1994), not the actual number of people employed on a full-time basis. RAD also has strategic civil defense duties, such as the repair and development of roads outside the city limits, and therefore will not be commented on further in this report.

Because much of the work undertaken by the Public Hygiene Directorate is unpleasant and dirty, much of the present labor is employed on a temporary basis, according to need. At present, this is when fuel is available for operating the refuse disposal trucks. Thus, the present workforce, including people from the civil defense, is approximately 300 persons.

Figure 4

Staff Organization Chart for Electricity Supply



Note:

Because many of the electricity generation and transmission facilities are in Serb-controlled areas and because of the ongoing security situation, the number of

staff employed in each directorate or department could not be determined. However, before the war Elektroprivreda employed almost 18,000 staff. This has now been reduced to fewer than 3,000 personnel.

Figure 5

Staff Organization Chart for Public Works Department

<p style="text-align: center;">"RAD" General Manager (1994)</p>					
Public Hygiene Directorate		Operation & Maintenance Directorate		Administration Directorate	
Sector	Staff	Sector	Staff	Sector	Staff
Solid Waste Transport	192	Operators	120	Specialist Experts	5
Street Cleaning	24	Maintenance	50	Security and Administration	48
Solid Waste Disposal	14	City Road Repairs	34	Commercial	10
Dog Pound	10			Financial & Bookkeeping	7
Winter Services	4			Catering	8
Total Planned Staff	244	Total Planned Staff	204	Total Planned Staff	80

- Notes:
- a) The number of staff employed in PWD before the war (1991) was approximately 1,200, but the staffing structure was not available.
 - b) The figures above, which total 529, are planned only and are not the actual staff permanently employed. This number is constantly changing because of the different duties that the PWD is called upon to perform during the present hostilities (September 1994).
 - c) Not included is the Road Section, which operates a stone quarry and crushing plant that has duties on roads outside the city.
 - d) Assistance has also been provided by UNPROFOR and private contractors for the clearing of domestic solid waste from the city.

RAD presently has a specialist expert working on the reorganization of the staffing structure, in preparation for the war's end. A more rational use of labor is being sought that uses fewer workers in an attempt to increase motivation through the ability to pay higher wages. Up until the war, salaries were controlled through government intervention. RAD wishes to be open to investment from private enterprise, with company shares being sold to the workforce.

An alternative consideration by RAD was to form a separate new company for solid waste management, founded on a new commercial basis, with more efficiency and motivation and with the power to replace poorly performing workers.

It was suggested that the experts and department heads should have the opportunity to visit other cities in Europe or the U.S. to see how other cities and industries deal with their refuse problems, discuss other company management techniques, and exchange opinions on the latest technological trends in solid waste management including re-cycling and pollution control.

2. Finances

Because of the war, past records on the finances of RAD were not available for inspection.

Before the war, there were two administration sectors, one dealing with legal and general matters and the other concerned with finance and economics. These have now been combined into one section to economize on staff. Their duties originally included the billing and collection of fees from private houses and industries for the collection and disposal of wastes from their premises.

Computers are used in the accounts section, but they are slow and not equipped with management and stock control programs. The use of a central payment billing and collection database was considered by the RAD General Manager to be an excellent way of streamlining administration procedures, not just for RAD, but throughout the city.

E. PUBLIC TRANSPORT

1. Human Resources and Organization

The public transport system operated in Sarajevo by GRAS before the war covered the whole of the urban area of the city. Since the troubles and the dividing of the city into ethnic areas of control, GRAS now operates only in the Bosnian-held areas, which include the city center and the main residential and industrial areas westward toward the airport. Before the war, GRAS employed more than 2,800 staff split up into 10 departments, as shown in **Figure 6**, serving the whole of Sarajevo. Of these 2,800, approximately 50% would be operating within the areas now under Bosnian control.

Staff Organization Chart for Sarajevo Public Transport Company

Note: Figures in brackets are number of actual staff (total 271), which varies between 236 and 400. Main figures are the planned staffing level during the present emergency, totaling 659.

"GRAS"
Director General
(1994)

Coordinators and
Advisers 6

Development of Traffic and Operations		Autobuses		Trams		Trolley Buses		Mini-buses		Energizing		Reconstruction		Administration		Catering		Sales	
Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff	Sector	Staff
Damage & Loss Assessment	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)	Section Control	1 (1)
Traffic Operatives	17 (11)	Bus Drivers	140 (40)	Tram Drivers	50 (50)	Trolley Drivers	- (-)	Mini-bus Drivers	8 (8)	Feeder Section	10 (10)	Construction	12 (8)	Legal & personnel	14 (10)	Catering	12 (12)	Ticket Production and Distn.	96 (10)
		Auto-bus Maint.	77 (35)	Tram Maint.	50 (16)	Trolley Maint.	13 (13)	Mini-bus Maint.	23 (6)	Struc. Maint.	2 (2)	Supervision	4 (4)	Finance	15 (10)				
				Track Maint.	14 (2)					Security & Fire Control	14 (14)			Commerce	16 (16)				
				Cable Car	2 (2)									Housing	2 (2)				
Internal Control	27 (17)																		
Radio Controllers	2 (2)																		
Tech. Operatives	12 (8)													Printing	5 (5)				
Computers	3 (2)																		
Total staff	62 (41)	Total staff	218 (76)	Total staff	117 (21)	Total staff	14 (14)	Total staff	32 (15)	Total staff	27 (27)	Total staff	17 (13)	Total staff	53 (32)	Total staff	13 (13)	Total staff	17 (13)

Figure 6

With the start of the present crisis and the reduction in the areas that could be served with public transport due to the damage caused, only 84 people were engaged and six armored buses operated. With the reduction in people available to work, it was necessary to make considerable revisions to the staff structure. It was therefore considered that nearly 660 people would be required to operate the diminished services, as shown in **Figure 6**.

The new structure included a small department for the reconstruction of the transport systems whose responsibility was to survey and coordinate repair of war damage to tram tracks, electricity conductor structures, transformers, and workshops. The organizational structure still maintained 10 different departments by combining the administration and economics departments, thus economizing on staff.

Figure 6 also indicates the number of staff presently engaged, which differs from the number planned, because many are not required all the time for numerous reasons. For example, vehicles were damaged and cannot be used, spare parts are not available to repair equipment and vehicles, fuel is not available for operating the buses, and sales staff are not needed because the services are free given that the people have no money to pay for tickets.

At the end of August 1994, GRAS employed 236 people full-time and had another 160 whom they could call upon on a temporary basis, depending on the availability of fuel or spare parts for maintenance. By the end of 1994, if peace is resumed, it is hoped that the full quota of 659 people will be reinstated. By April 1995, GRAS plans to have reestablished more buses, mini-buses, and trolley buses with the issue of tickets in mid-1995.

In the war situation, workers have had to become far more flexible in their work duties; drivers, for example, stand in as security guards. GRAS management hopes that this trend of flexibility can be maintained in the future to permit more efficient and economical operation of the transport systems.

2. Finances

Table 2 provides an extract summary of income and expenditures for GRAS in 1990 and 1991, before the war. Unfortunately, a breakdown of the income was not available, but the majority of this income was composed of ticket sales, which were on a trip or season basis. A small amount of revenue also came from catering, which included operation of the restaurant overlooking Sarajevo at the top of the cable car system.

GRAS was in the fortunate position, compared with Vodovod, of not having any large international debt to repay. It was therefore able to remain profitable without the direct injection of city funding, even against the hyperinflation that was occurring in 1990-91. This was greatly assisted by the ticketing philosophy, whereby many companies provide staff with season tickets as part of their wage package. Companies would thus pay GRAS for the transport services in advance.

Table 2
Income, Expenditures, and Profits for Period 1990 & 1991
for GRAS (Public Transport Company)
(in '000 dinars)

Elements	Actual 1990	Planned 1991	Actual 1991
Total Income	553.893	849.835	1.304.947
Total Expenditure	533.008	806.835	1.281.409
Material Expenses and Depreciation	203.124	306.957	516.265
1. Materials	76.363	99.912	151.702
2. Energy	57.355	105.355	172.235
3. Consumables	3.916	5.200	6.315
4. Service Charges	12.863	29.810	29.006
5. Reserve Fund	8.000	-	45.000
6. Depreciation	44.627	66.680	112.007
Non-Material Expenses	50.997	63.378	158.050
Gross Salaries	242.593	407.000	478.976
Purchase Value of Materials Sold	1.357	9.500	13.726
Miscellaneous Expenses	34.937	20.000	114.392
Gross Profit	20.885	43.000	23.538

This had several advantages, the most important of which was that GRAS could plan its financial strategy and invest the revenue received. It also encouraged the population to use the public transport system, thus maintaining a frequent and reliable service, which had the environmental advantage of reducing reliance on private transport, one of the major causes of air pollution in cities.

Trip tickets could also be purchased from numerous kiosks scattered around the city. These would be generally valid for a fixed period of travel (e.g., one hour) anywhere in the city. once the ticket was stamped at the start of a journey.

Purchasing all tickets before making the journey makes the entry time by passengers onto the vehicles more efficient by reducing the need for policing at the door and allowing for more access doors. In addition, it relieves conductors of the responsibility of collecting fares, again keeping overhead down.

Annex D. SUMMARY INCOME AND EXPENDITURE STATEMENT

CITY OF SARAJEVO, 1991

A. Summary Data

Following are summary data for income and budgeted expenditures by major category for Sarajevo during 1991, the last year during which normal city financial operations occurred. Fuller explanations of some items follow the summary. All figures are presented in US\$; the prevailing exchange rate in June 1991 was \$1 = 23.4 dinars.

INCOME

<u>Item</u>	<u>Description</u>	<u>Amount</u>	<u>% of Total</u>
720	Salary tax	4,375,439	28.1%
732	Purchase/trade tax	6,698,688	43.1%
734	Municipal service tax	128,150	0.8%
748	Misc. fees	260,572	1.6%
750	City stamp tax	850,363	5.4%
751	Communal use tax	105,647	0.6%
770	Common consumption/allowances tax	1,174,737	7.6%
721	Private artisans' tax	742,594	4.7%
722	Royalty tax	305,054	2.0%
723	Private farming tax	40,957	0.3%
735	Property sales tax	420,221	2.7%
740	Property rental tax	81,215	0.5%
741	Inheritance tax	68,473	0.4%
743	Excess income tax	5,382	0.01%
	Subtotal	15,257,492	98.1%
	Previous balance	300,100	1.9%
	TOTAL	15,557,592	100.0%

BUDGETED EXPENDITURES

<u>Item</u>	<u>Description</u>	<u>Amount</u>	<u>% of Total</u>
40	City Administration		
	a. Salaries	5,281,377	34.0%
	b. Running costs	1,610,306	10.4%
	Item subtotal	6,891,683	44.4%
41	Salaries and expenses for elected officials	2,174,517	14.0%
42	National defense contrib.	239,351	1.5%
43	Contributions to civic orgs.	435,925	2.8%
44	Transfers to municipalities	85,434	0.6%
45	Social orgs.: culture, sport, etc.	81,974	0.5%
46	Political parties, trade unions, etc.	687,740	4.4%
47	Reserves	342,817	2.2%
48	Municipality running costs, banking services, etc.	4,575,436	29.5%
	TOTAL	15,514,877	100.0%

B. Income Items

About 80% of the city's income under the previous regime derived from items 720, 732, and 770 above, all of which were paid by employers and businesses to the national government, which then remitted fixed percentages of collections from city and municipal jurisdictions to the relevant local authorities. The salary taxation system (item 720) in the former Republic was fairly complex. Employers paid 83% over and above employees' salaries as contributions to national social welfare funds, plus a salary tax that was remitted to local authorities. The purchase/trade tax (essentially a sales tax) was also collected by national authorities based upon a range of eight tariffs assessed against various categories of items. Local authorities were entitled to 30% of all collections. The common consumption tax was paid by employers to national government on food, transportation and holiday allowances provided to employees. Again, local authority shares in these taxes were remitted from the center.

Another income item of interest, no. 721, was the tax on private artisans. Before the war, there were more than 15,000 registered private enterprises in Sarajevo; there are now about one tenth that number. Private entrepreneurs paid their contributions to national social welfare funds as well as income tax through "social accountancy" bureaus, which transmitted appropriate shares of collections to national and local authorities. City officials suggest that the amount of revenue collected through this item was probably not commensurate with real private income, because of underreporting.

Several sources of income common in western cities, including business licenses and real property taxes or rates, were not present in Sarajevo under the former Republic. In addition, the city did not invest its funds.

C. Expenditures

It is unclear to what degree, in 1991, the city budget included payments of salaries for employees of the nine city-owned or -controlled public enterprises. The number of subventions from the City budget to enterprises appears to have varied from year to year; the city was also required to assist with the loan repayments of at least one of the enterprises in recent years.

The city has historically raised capital for investment in a number of ways. From the early 1970s, 4-year programs of public works were proposed for funding through donations ratified by referendums. This system approximates special assessments common in the U.S. The city has also secured international loans from the World Bank and other sources for several projects including investments associated with the 1984 Winter Olympics.

Annex E. URGENT NEEDS FOR COMPUTER CENTER

Notebooks or Laptops

DX-2/50, 4-8M RAM, HDD 250-400M internal or PCMCIA modem V.32 with V.42 bis, internal or PCMCIA LAN card, PCMCIA slots	8 pcs
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CPUs — Motherboards

Pentium 66	2 pcs
486 DX-2/66	2 pcs

Hard Disks and Mass Storage Units

Mobile HDD with adapter for NoteBook, 200-400M + cables	2 pcs
Internal SCSI HDD 400-600M	2 pcs
SCSI adapter card,	
Cables	
IDE HDD, 200-400M + controller + cables	3 pcs
External CD-ROM with adapter for PC + cables	1 pcs
External SCSI HDD 400-600M	2 pcs
mini SCSI host adapter (for parallel port)	
Cables	

Memory

SIMM 1M x 9,70 ns	20 pcs
SIMM 4M x 9,70 ns	10 pcs

Communications

Mini transportable modem V.32 with V.42 bis, external	5 pcs
RS-232 Tester	1 pcs
– sync or async	
– speed 75 bps to 64 Kbps	
– SNA/SDLC monitoring	

Connectors

DB25, male	50 pcs
DB25, female	50 pcs
Hood for DB25	100 pcs
DB09, male	20 pcs
DB09, female	20 pcs
Hood for DB09	40 pcs
CENTRONICS CEN 36, Male	5 pcs
CENTRONICS CEN 36, Female	5 pcs
RJ-11, male	50 pcs
RJ-11, female, PC mount	5 pcs
RJ-45, male	50 pcs
RJ-45, female, PC mount	5 pcs
MMJ, male	50 pcs
MMJ, female, PC mount	5 pcs
coaxial BNC connector	20 pcs
coaxial T adapter BNC (double female to single male)	10 pcs
BNC terminator	5 pcs

Tools

Solder tool kit	2 pcs
Soldering iron	2 pcs
Soldering and desoldering station	1 pcs
– thermostatically controlled (200-900 F)	
– solder gun, gun rest and cooling tray	
– oil free vacuum pump	
– separate solder/desolder guns	
Desolder pump	2 pcs
Modular crimping tool for RJ-11, RJ-45 and MMJ	1 pcs
Computer tool kit	2 pcs

Electronic Components

DC/DC converter chip	5 pcs
input 9-18VDC, output +12V, -12V, +5V, -5V, 20W	
ROCKWELL CHIP RC 2324 AC-E or newer one	2 pcs
– software + designer guide	

Software

FoxPro 2.6, professional version	1 pcs
– development version + distribution kit + Fox Graph	
Borland Paradox	1 pcs
Telir communication software	1 pcs
PC AnyWhere (Host & Remote)	1 pcs

Catalogues and Books

Computer Shopper	1 pcs
DIGITAL DECorder catalog	1 pcs
JDR Micro Devices catalog	1 pcs
Rockwell book data communications	1 pcs
C & C computer and communication catalog	1 pcs
Black Box Corporation catalog	1 pcs

Tapes and Diskettes

3.5" diskettes, 1.44M	100 pcs
DIGITAL TLZ03 tape cartridge	15 pcs
DIGITAL TK50 tape cartridge	10 pcs

Working conditions for all equipment: 220V, 50Hz, normal temperature and humidity

The City of Sarajevo
Computer Center
Ise Jovanovica 4
Sarajevo

Manager: Haris Trnka
Tel: 444 - 370

6 September 1994